

AGRICULTURAL GUIDE

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Insect control
in alfalfa

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Aphid control in alfalfa

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Aphids, tiny insects with piercing-sucking mouthparts, can attack alfalfa at any time during the growing season. The **pea aphid** and **spotted alfalfa aphid** can be found throughout the state of Missouri, but the spotted alfalfa aphid is most often a problem only in the southwestern portion of the state. The **blue alfalfa aphid** is now present in the western portion of the state but at this time is not a problem.

Pea Aphid

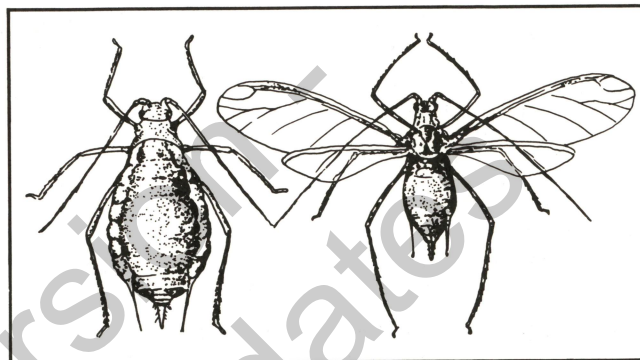
Description and life history. The pea aphid is pear-shaped and ranges in color from light to dark green (See picture sheet no. 8). Although it measures just over $\frac{1}{8}$ inch long, its long legs give it the appearance of being larger than most aphids. The pea aphid overwinters in the egg stage in Missouri. These eggs are attached to alfalfa stems and dropped leaves. The eggs hatch in early spring, and the nymphs begin feeding immediately. Since the entire life cycle requires only about 12 days, several generations occur during the growing season.

Pea aphids prefer cool temperatures and dry conditions. If these conditions occur, pea aphids can be a problem from April to September.

Damage. These aphids suck juices from all parts of the alfalfa plant. Yellowing and wilted plants can result, and severely damaged plants may be stunted. Under excessive feeding the tips of the plants may die if control measures are not applied.

Spotted Alfalfa Aphid

Description and life history. The spotted alfalfa aphid is small ($\frac{1}{8}$ inch) and pale yellow to green in color. It is



The pea aphid, wingless and winged adults.

characterized by four to six rows of spots on its back (See picture sheet no. 8). Each spot is tipped with a short spine. It overwinters in Missouri in the egg stage. It completes its life cycle very rapidly; less than seven days are required. Each female can give birth to more than 100 offspring.

These aphids prefer hot and dry conditions and are considered to be mid to late summer pests of alfalfa. They occur most frequently under drought conditions.

Damage. These aphids suck the juices from the alfalfa plant. In addition, they inject a toxin into the plants, which results in yellowing. Excessive feeding may stunt alfalfa growth and even kill seedlings. The spotted alfalfa aphid also secretes a honeydew that may result in the growth of sooty mold and could reduce hay quality. This honeydew can also interfere with harvest by gumming up the sickle bar.

Control

The control measures and economic levels differ somewhat for the two aphids. Treatment for the pea aphid should be initiated if aphid populations appear high, if the alfalfa begins to lose its dark green color, and if terminals begin to wilt. For control of the pea aphid use any of the materials listed in Table 1.

Control of the spotted alfalfa aphid is justified when aphids average $\frac{1}{2}$ to one per seedling or 20 to 40 per stem of mature plants. For control of the spotted alfalfa aphid, use any of the materials listed in Table 2.

Table 1. Pea aphid insecticide recommendations.

Insecticide	Formulation	Actual rate of insecticide per acre	Rate of formulation per acre	Required preharvest interval (days)
<i>disulfoton (RU)</i> ¹ (<i>Di-Syston</i>)	15G	1 lb.	6.7 lbs.	7
<i>malathion</i> ²	57%EC	15 ozs.	1½ pt.	0
<i>methyl parathion (RU)</i> ²	25%EC	.5 lb.	2 pts.	15
	45%EC		1 pt.	15
<i>Penncap M (RU)</i> ² (<i>encapsulated methyl parathion</i>)	encap. 2 lb.	.5 lb.	2 pts.	15
<i>methidathion (RU)</i> ² (<i>Supracide</i>)	2E	1 lb.	2 pts.	10
<i>carbofuran (RU)</i> ² (<i>Furadan</i>)	4F	.5 lb. 1 lb.	1 pt. 2 pts.	14 28
<i>chlorpyrifos (Losban)</i>	4E	1.0 lb.	2 pts.	21

¹Any insecticide followed by **RU** (Restricted Use) means that all or some uses of this product have been restricted by the EPA. Any applicator must be certified and licensed before purchasing restricted use insecticides.

²Highly toxic to bees exposed to direct treatment, residue on crop or on blooming weeds.

Precautions: Allow at least 28 days between applications of disulfoton granules. **Do not** apply chlorpyrifos more than four times a year. **Do not** allow workers to re-enter ethyl or methyl parathion treated fields for 48 hours without protective clothing. **Do not** apply carbofuran more than once per cutting nor more than twice per season, and use no more than 1 pint on the second application.

Table 2. Spotted alfalfa aphid insecticide recommendations.

Insecticide	Formulation	Actual rate of insecticide per acre	Rate of formulation per acre	Required preharvest interval (days)
<i>disulfoton (RU)</i> ¹ (<i>Di-Syston</i>)	15G	1 lb.	6.7 lbs.	7
<i>malathion</i> ²	57%EC	15 ozs. ³ 12 ozs. ⁴	1-1/2 pt. 1-1/4 pt.	0 0
<i>ethyl- or methyl parathion</i> ²	25%EC	.25 lb.	1 pt.	15
	45%EC	.25 lb.	1/2 pt.	15

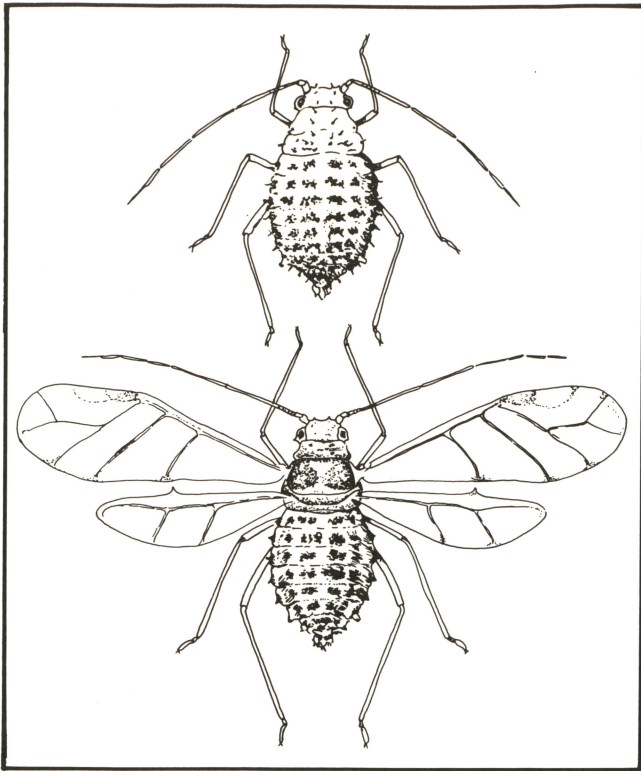
¹Any insecticide followed by **RU** (Restricted Use) means that all or some uses of this product have been restricted by the EPA. Any applicator must be certified and licensed before purchasing restricted use insecticides.

²Highly toxic to bees exposed to direct treatment, residue on crops or blooming weeds.

³Use this rate when both the spotted alfalfa aphid and pea aphid are present in the spring.

⁴Use this rate in the summer and fall when pea aphids are not present.

Precautions: Allow at least 28 days between applications of disulfoton granules. **Do not** allow workers to re-enter ethyl or methyl parathion treated fields for 48 hours without protective clothing.



Top: wingless spotted alfalfa aphid. Bottom: winged adult spotted alfalfa aphid.

How to spray

Calibrate the sprayer to apply sufficient gallonage and at a speed to give complete coverage of all foliage. Adequate coverage is very important in aphid control. Normally 12 to 15 gallons of spray are required per acre for alfalfa 8 to 12 inches high. Use 15 to 20 gallons when alfalfa is more than 12 inches high and the foliage is dense. For stubble spray, 10 to 12 gallons will give sufficient coverage. Seedling stands require a minimum of 20 gallons per acre.

Do not spray unless temperatures are above 60 degrees F and are expected to remain so for at least one or two days. Wind velocity should be less than 10 to 12 miles per hour.

Granules may be applied with aircraft or with various pieces of ground equipment which will give even broadcast

distribution. For spotted alfalfa aphid control on fall-seeded alfalfa, apply granules with the seed or drilled, side-dressed or broadcast at the time of planting.

Remember that aphid populations are very susceptible to predators, parasites, diseases and weather. Check fields regularly. Aphid populations may decline due to natural control agents. Also keep in mind that early season treatments for the alfalfa weevil or variegated cutworm may reduce the number of beneficial insects in the field. Keep a close watch on aphid populations following treatments for these pests.

Resistant varieties of alfalfa are available, such as Cody, Dawson and Kanza, and may help reduce aphid problems. The maintenance of vigorous stands of weed-free alfalfa is also important.

Precautions

Always handle insecticides with caution. Read, understand and follow the directions on the label concerning use and safety measures. Wear protective clothing and devices when suggested on the label. Avoid breathing vapors, dust, or contact with the skin. If the insecticide concentrate contacts or contaminates the skin, wash the affected area with soap and plenty of water immediately and change clothing.

Store insecticides in their container with legible label securely attached. The storage area should be dry and locked at all times when not actually in use.

Promptly and properly dispose of empty containers as directed on the label. Triple rinse all containers before disposal. Burn combustible containers, but do not stand in the smoke or breathe fumes from the fire. Crush containers that will not burn and bury them under 18 to 24 inches of soil in an area where drainage will not contaminate surrounding crops, water or wildlife habitat.

Missouri control recommendations are revised annually and are subject to possible change during the growing season. Therefore, this guide is intended for use during the **1984** season only.

■ Issued in furtherance of Cooperative Extension Work Acts of May 8 and June 30, 1914 in cooperation with the United States Department of Agriculture. Leonard C. Douglas, Director, Cooperative Extension Service, University of Missouri and Lincoln University, Columbia, Missouri 65211. ■ An equal opportunity institution.